

WHAT IS CLAIMED IS:

1. A fixing apparatus comprising:

a fixing device including a fixing roller and a
press roller set in contact with the fixing roller,
5 configured to heat and press a to-be-fixed material by
making the material pass between the fixing roller and
press roller; and

an induction heating device provided inside the
fixing roller, configured to heat the fixing roller by
10 induction heating,

wherein

the induction heating device includes a core
member and an excitation coil wound around the core
member, and

15 the apparatus satisfies a relationship represented
by $L/R \times 0.3 \leq B \leq D/3$,

where D represents an inner diameter of the heat
roller, $L[\mu H]$ represents an inductance of the
excitation coil, $R[\Omega]$ represents a resistance of the
20 heat roller, and B represents a width of a portion of
the core member, which opposes at least the heat
roller.

2. The fixing apparatus according to claim 1,
wherein the L/R satisfies a relationship represented by
25 $24 \leq L/R \leq 32$.

3. The fixing apparatus according to claim 1,
wherein the excitation coil is made of a Litz wire

of 16 strands, and a diameter of the Litz wire is 0.5 mm.

4. The fixing apparatus according to claim 1, wherein the core member is made of an Mn-Ni-based, Ni-Zn-based or ceramic-based material.

5. A fixing apparatus comprising:
a fixing device including a fixing roller and a press roller set in contact with the fixing roller, configured to heat and press a to-be-fixed material by making the material pass between the fixing roller and press roller; and

an induction heating device provided inside the fixing roller, configured to heat the fixing roller by induction heating,

wherein

the induction heating device includes a core member and an excitation coil wound around the core member,

the apparatus satisfies a relationship represented by $L/R \times 0.3 \leq B \leq D/3$,

where D represents an inner diameter of the heat roller, L[μ H] represents an inductance of the excitation coil, R[Ω] represents a resistance of the heat roller, and B represents a width of a portion of the core member, which opposes at least the heat roller, and

a drive circuit configured to supply a direct

current voltage is connected to the excitation coil via a switching circuit.